

Notes

The distribution and habitats of three presumed rare species from Cape York Peninsula

With the advent of Queensland (Nature Conservation Act 1992) and Federal legislation (Endangered Species Bill 1992) designed to protect rare and threatened flora and fauna, it is important that sufficient data be gathered on any taxon to accurately assess its rarity status. For Cape York Peninsula, defined here as all of Queensland north of 16°S, Thomas and McDonald (1989) list 324 species of vascular plants as rare or threatened. These species and their rarity status are listed in Clarkson (in press). Briggs and Leigh (1988) list 633 vascular plant species as rare or threatened for the much larger Cook Pastoral District (approximately twice the area). While this is the largest number recorded for a pastoral district in Australia, it is much smaller than the 1203 species listed for the comparably sized Southwest Province of Western Australia. A summary of the number of vascular plants in each rarity code for three regions is given in **Table 1**.

Northern Queensland has a diverse flora, and the rare and threatened species listed make up a significant proportion of those listed for Australia (Cape York Peninsula 9.7%, Cook Pastoral District 19.0%). However, the majority of those species listed by both authorities are not under immediate threat; 86% of those listed

are rare or poorly known. It is important to note that of the 324 species listed for Cape York Peninsula, 198 species (61%) are confined to the relatively restricted rainforest habitats (<15% of the area). (Figures are derived from Thomas & McDonald (1989)).

Development pressures over most of Cape York Peninsula are presently of low intensity. However, recently there have been some significant sized areas cleared for pasture improvement (e.g. 800 ha at Kalinga Station north of Laura), and infrastructure developments (Shurga Royal Australian Air Force airfield, east of Weipa), and an increasing number of tourists in the region. It is likely that human disturbance to the environment will increase in impact in the future.

Our knowledge of plant distribution and ecology is still limited, so as more data becomes available, it is inevitable that the composition and size of the rare and threatened plant list for the area will change considerably. This paper examines the conservation status of three presumed rare species in the light of additional habitat and distribution data gathered during the vegetation survey and mapping of Far Northern Queensland (Neldner & Clarkson, in prep.).

Table 1. Summary statistics of rare and threatened vascular plants for three regions

Region	Extinct	Endangered	Vulnerable	Rare	Poorly known	Total
Cape York Peninsula Thomas & McDonald (1989)	2	4	38	183	97	324
Cook District Briggs & Leigh (1988)	3	9	68	402	151	633
Australia Briggs & Leigh (1988)	97	209	784	1367	872	3329

1. *Neofabricia mjoebergii* (Cheel) Joy Thoms. (Myrtaceae)

Neofabricia mjoebergii was first described by Cheel (1919) as a species of *Leptospermum*. Thompson (1983), in a precursor to her *Leptospermum* revision, described a new genus, *Neofabricia*, to accommodate two species related to *Leptospermum* but separate from that genus. A detailed description and illustration of *N. mjoebergii* were provided in a later revision of *Neofabricia* (Clarkson & Thompson 1989). Sixteen specimens of *N. mjoebergii* were examined for that revision. All were collected between latitudes 14°30'S and 15°30'S on Cape York Peninsula (see **Figure 1**).

Since that revision, specimens from four additional localities have been lodged in the Queensland Herbarium (BRI). No additional collecting localities were found when examining specimens in the Australian National Herbarium, Atherton (QRS).

Additional specimens: Queensland, COOK DISTRICT: Lower Lumbar Lagoon, 15°-S, 144°-E, Sept 1986, *Harger* [*Hanger*]; 5.4 km S of Hann River, 15°13'S, 143°54'E, Nov 1989, *Neldner* 2857 & *Clarkson*; 14.4 km W of Lake Emma, 15°21'S, 144°31'E, May 1989, *Clarkson* 7951; 6 km SE of Sefton homestead, 15°26'S, 142°39'E, Aug 1992, *Clarkson* 7937 & *Neldner*.

This species has also been recorded, but not collected, at ten detailed and twenty observational sites by Neldner and Clarkson with five sites (8, 548, 754, 755 and 773) occurring in Lakefield National Park. This new data extends the known distribution of the species, particularly in a south westerly direction. Locality details of sites are given in **Appendix 1**.

Habitat notes: A general description of the habitat of this species was given by Clarkson and Thompson (1989, p. 293), viz 'occurs in open forests and woodlands dominated by *Eucalyptus* and *Melaleuca* species, usually associated with white sands. The understorey of these communities is often shrubby'. A much clearer description of the habitats of this species can now be given. *Neofabricia mjoebergii* forms a component of the canopy tree layer (8–13 m tall) of a woodland to low open-forest as defined by Specht (1970), (20–35% Projective Foliage

Cover (PFC)), dominated usually by *Thryptomene oligandra* and *Melaleuca viridiflora*. *Neofabricia mjoebergii*, *Acacia torulosa* and *Grevillea pteridifolia* are frequently codominant canopy trees. Other frequent canopy species are *Asteromyrtus symphyocarpa*, *Melaleuca stenostachya*, *Parinari nonda* and *Syzygium eucalyptoides*. An open low tree layer (5–7 m tall) and an open low shrub layer (0.5–1.5 m tall) are usually also present. These layers are composed of smaller individuals of the canopy species plus *Acacia crassicaarpa*, *A. platycarpa* and *Petalostigma pubescens* in the low tree layer, and *Alyxia spicata*, *Hibiscus meraukensis* and *Jacksonia thesioides* in the low shrub layer. The ground layer is open (15–25% PFC) and composed of grasses, sedges and forbs. The majority of the ground layer biomass is composed of grasses (*Aristida* spp., *Eriachne* spp., *Ectrosia leporina*, *Schizachyrium* spp. and *Thaumastochloa* spp.).

This vegetation association occurs predictably as a narrow band between the rolling sandridges dominated by *Eucalyptus tetradonta* woodlands and the longitudinal drainage depressions dominated by *Melaleuca citrolens*, *M. viridiflora* or *M. saligna* low open woodlands (See **Figure 2**). It occurs on rudimentary podzols which are composed almost entirely of siliceous sands, and overlie clay hardpans. In this situation, the association probably receives downslope seepage for much of the year, which would account for the high density of trees and shrubs. In the area south of Cape Melville, *N. mjoebergii* occurs in a similar woodland, adjacent to drainage lines dominated by *Melaleuca leucadendra*. This association has been mapped by Neldner and Clarkson (in prep.) as a distinct map unit which occurs widely and moderately extensively throughout the range of *N. mjoebergii* as shown in **Figure 1**.

Conservation status: Due to the limited number of specimens available for study in herbaria and the relatively restricted distributional range as indicated by these specimens (collected mainly from around Musgrave), *N. mjoebergii* was afforded a conservation status rating of 2R by Thomas and McDonald (1987, 1989) and Briggs and Leigh (1988). This assessment was supported by Clarkson and Thompson (1989), al-

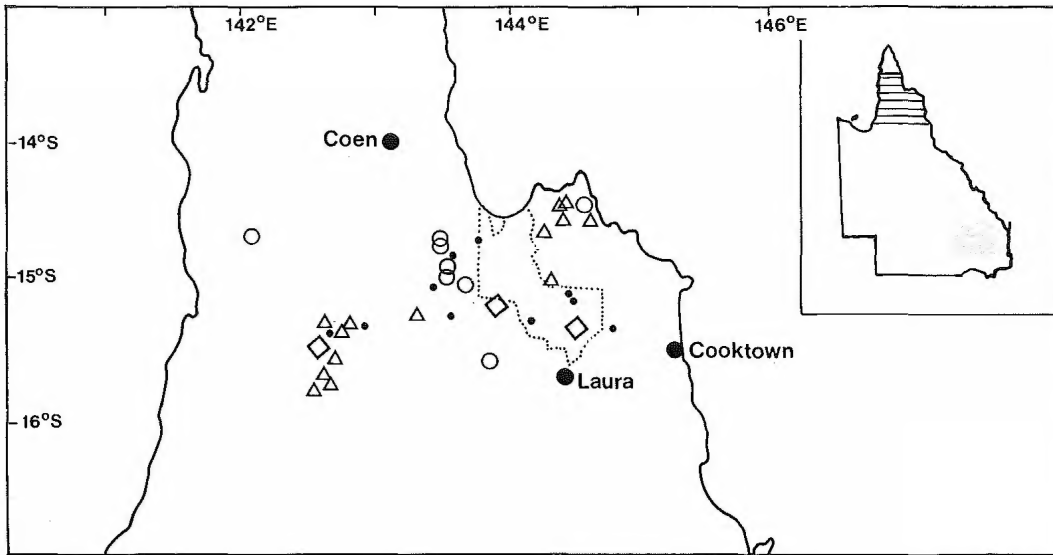


Fig. 1. Known distribution of *Neofabricia mjoebergii*: ○ Herbarium collections examined by Clarkson & Thompson (1989); ◇ Additional herbarium collections; △ Recorded at observational site; • Recorded at detailed ecological site; ... Lakefield National Park.

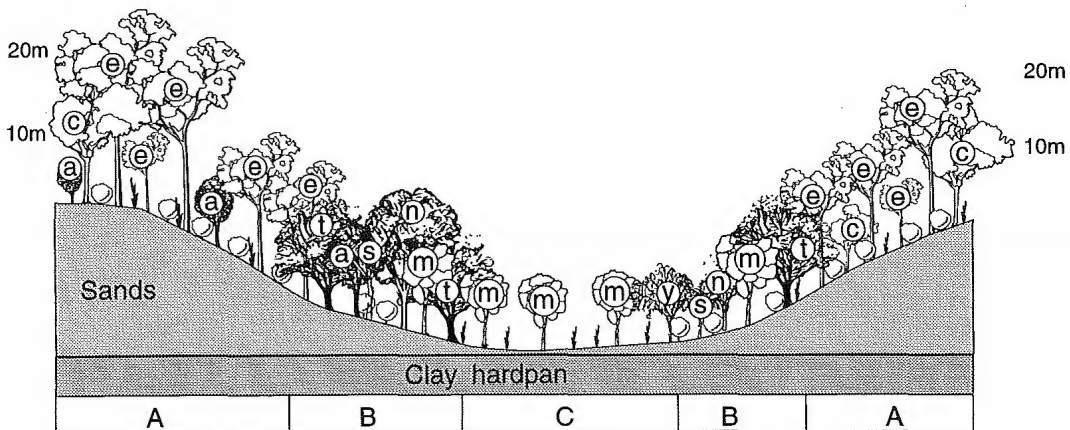


Fig. 2. A schematic diagram of the vegetation communities found associated with *Neofabricia mjoebergii*.

A = *Eucalyptus tetradonta* ± *Eucalyptus* spp. woodland

B = *Thryptomene oligandra*, *Melaleuca* spp. ± *Acacia* spp. woodland to open-forest

C = *Melaleuca* spp. low open-woodlands.

Plant codes: a = *Acacia* spp., c = *Erythrophleum chlorostachyus*, e = *Eucalyptus* spp., g = *Grevillea pteridifolia*, m = *Melaleuca* spp., n = *Neofabricia mjoebergii*, s = *Syzygium eucalyptoides*, t = *Thryptomene oligandra*, y = *Asteromyrtus symphyocarpa*, ⊙ = shrubs, ⚡ = grasses.

though they suggested that the species almost certainly also occurs in Lakefield National Park.

The additional data collected since 1989 suggest that this species should be removed from any list of rare and threatened plants. *N. mjoebergii* has a relatively widespread distribution (approximately 300 km by 130 km) and a large area of suitable habitat. Where it occurs, its habitat is not threatened by destructive forces as the primary land use is extensive grazing on natural pastures. The species has been recorded at five localities in Lakefield National Park. At the sample sites where *N. mjoebergii* was recorded, its density in the tree layer ranged from 40 to 220 trees/ha (mean 80 trees/ha) and 40 to 200 seedlings/ha (mean 90 seedlings/ha).

In the field, *N. mjoebergii* looks similar in general appearance to the more widespread *Thryptomene oligandra*, and this may explain why it has been previously poorly collected (Clarkson & Thompson 1989).

2. *Neofabricia sericisepala* J. Clarkson & Joy Thomps. (Myrtaceae)

Neofabricia sericisepala was described in Clarkson and Thompson (1989) from 14 specimens collected on Cape York Peninsula between 13°S and 16°S (see **Figure 3**). Since their revision, six additional specimens have been lodged at BRI but no extra additional specimens have been added to QRS.

Additional Specimens: Queensland. COOK DISTRICT: 2.5 km W of Potallah Creek mine, 15°07'S, 143°02'E, Aug 1992, Clarkson 9727 & Neldner; 6.4 km E of Normanby River, 15°17'S, 144°54'E, Apr 1989, Clarkson 7862 & Neldner; 3 km W of Mt Rose, 15°20'S, 144°59'E, Jul 1990, Bean 2006; 4.9 km E of Oroners, 15°25'S, 142°59'E, Aug 1992, Clarkson 9732B & Neldner; 7 km W of Jowalbinna, 15°46'S, 144°11'E, Jul 1990, Bean 1729; 3.3 km S of Shepherd Creek, 15°46'S, 144°16'E, Jun 1992, Clarkson 9616 & Neldner.

In addition, *N. sericisepala* has been recorded, but not collected, at eight detailed and two observational sites (Neldner & Clarkson, in prep.). See **Appendix 1** for site locations.

This new data extends the known range of *N. sericisepala* in an easterly and south-west-

erly direction, giving it a range of approximately 350 km by 150 km.

Habitat notes: Clarkson and Thompson (1989, p. 294) described the habitat of *N. sericisepala* as 'Eucalyptus woodlands usually on shallow sandy soils derived from sandstone'. The data collected by Neldner and Clarkson show that this species occurs predominantly in two extensive plant associations: (1) *Eucalyptus hylandii* with or without *E. tetradonta* woodlands on Tertiary sandstone plateaus and slopes to the east and west of Laura, and rocky, low ridges north and west of Musgrave (sites 18 and 509); and (2) *Eucalyptus hylandii*, *E. setosa*, *Erythrophleum chlorostachyus* with or without *Eucalyptus tetradonta* woodlands on sandridges of Tertiary washout or derived *in situ* on sandstone, south-west of Musgrave (sites 556, 561 and 566). *N. sericisepala* has also been recorded in a *Melaleuca stenostachya* low open-woodland on sandstone footslopes (site 505) and in a *Eucalyptus hylandii* and *M. stenostachya* low woodland on metamorphic ranges (site 613). In all these associations, *N. sericisepala* occurs occasionally as a low tree 3–6 m tall (20–50 trees/ha) with scattered juvenile trees 0.5 m tall (40–1000 shrubs/ha). It regenerates well after fire from underground lignotubers and woody stems.

Conservation status: Clarkson and Thompson (1989) rated this species as 3R, using the conservation status criteria of Thomas and McDonald (1987), but stated that it was likely that it occurred in Rokeby National Park (north of Coen). This 3R rating was maintained by Thomas and McDonald (1989), listed as *Neofabricia* sp. 'Merapah'. It was not listed in Briggs and Leigh (1988). On the basis of the additional data now available, it is recommended that *N. sericisepala* be removed from any list of rare and threatened plants. The species occurs over extensive areas where low intensity grazing is having only a minimal impact on the vegetation. It occurs in the Quinkan Reserve (west of Laura) and Palmer River Goldfields Reserve (north of Maytown) (neither offer a high level of protection for flora), Lakefield National Park (site 754) and almost certainly is present in Rokeby National Park. Prior to 1989, this species was confused with the more wide-

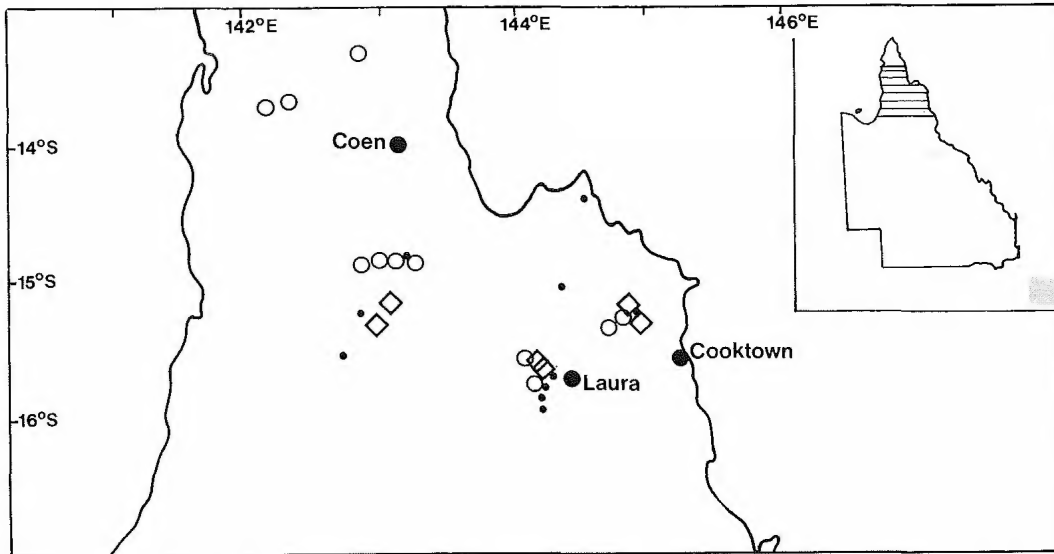


Fig. 3. Known distribution of *Neofabricia sericisepala*: ○ Herbarium collections examined by Clarkson & Thompson (1989); ◇ Additional herbarium collections; • Recorded at detailed ecological site.

spread *Neofabricia myrtifolia*, which may partly explain the low numbers of herbarium collections of this species.

3. *Decaschistia peninsularis* Craven & Fryx. (Malvaceae)

Decaschistia peninsularis was described as a new species by Craven and Fryxell (1989) from seven specimens (see Figure 4). These specimens were all collected on Cape York Peninsula, with the exception of one collection from Lawn Hill (18°35'S, 138°35'E) in March 1891 by F.H. Hann (not shown on Figure 4).

Since the publication of the species name, specimens from thirteen additional localities have been lodged in BRI and one additional locality in QRS.

Additional specimens: Queensland, COOK DISTRICT: 10.1 km N of Ussher Point road, 11°06'S 142°44'E, Jul 1992, Clarkson 9680 & Neldner; 1.3 km S of Cockatoo Creek, 11°39'S, 142°27'E, Mar 1992, Clarkson 9331 & Neldner; Heathlands turnoff on Peninsula Developmental Road, 11°49'S, 142°30'E, Feb 1992, Sharpe 5179; between the Dulhunty River and Bertie Creek, 11°50'S, 142°30'E, Mar 1992, Clarkson 9348; south of Dulhunty River crossing, 11°50'S, 142°30'E, Mar 1992, Sharpe 5246; 2 km along Bolt Head Rd off Maloney's Springs Rd, 12°27'S, 143°01'E,

Jun 1989, Forster 5523; 0.7 km S of Wenlock River, 12°28'S, 142°38'E, Apr 1990, Clarkson 8389 & Neldner; Batavia Downs 11.7 km E of Peninsula Developmental Rd, 12°50'S, 142°49'E, Oct 1989, Neldner 2817 & Clarkson; 19.4 km S of Batavia Downs on Peninsula Developmental Rd, 12°50'S, 142°43'E, Apr 1990, Clarkson 8314 & Neldner; 31.5 km SW of Nundah outstation, Apr 1993, Clarkson 9951 & Neldner; 15 km N of Archer River, 13°19'S, 142°52'E, Apr 1988, Forster 4036; 6.8 km N of Archer River, 13°23'S, 142°54'E, Apr 1991, Clarkson 8968 & Neldner; Merapah, 13°43'S, 142°25'E, Feb 1980, Hyland 10313 (QRS); 33 km WSW of Coen, 14°01'S, 142°54'E, Aug 1990, Fell 2184.

In addition, *D. peninsularis* has been recorded but not collected, at 29 detailed sites in the Far Northern Queensland vegetation survey, with the position of those sites that extended the range of this taxon indicated on Figure 4. Locality details are given in Appendix 1.

These new data have greatly increased the known distribution of this taxon in a northerly, southerly and easterly direction.

Habitat notes: The general habitat information given by Craven and Fryxell (1989, p. 462) was that *D. peninsularis* was collected 'in open-forest, in *Eucalyptus tetrodonta* woodland with *Melaleuca viridiflora* and in *Eucalyptus*

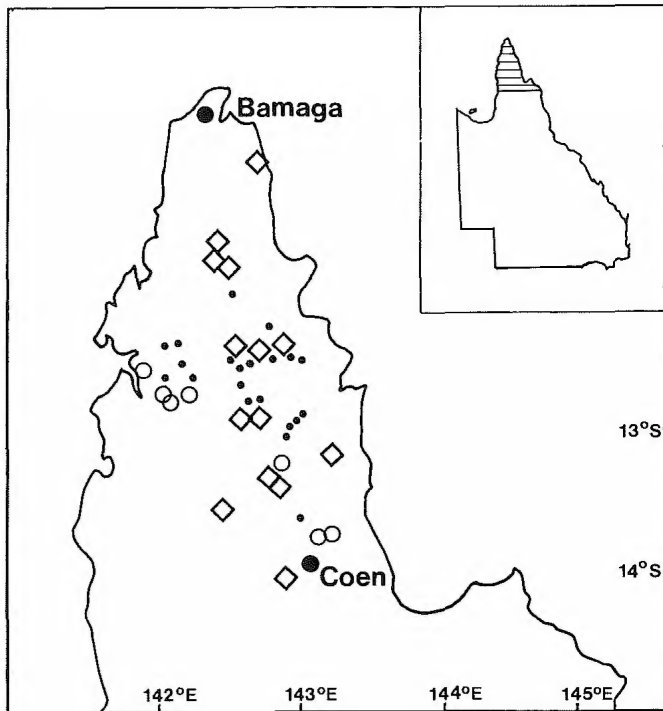


Fig. 4. Known distribution of *Decaschistia peninsularis*.

- Herbarium collections examined by Craven & Fryxell (1989)
- ◇ Additional herbarium collections
- Recorded at detailed ecological site

papuana woodland, and on sandy and stony clay soils'. *Decaschistia peninsularis* was recorded at 11 sites on Batavia Downs property (north of Coen) in five different vegetation communities (map units 3, 4, 5, 6 and 9) by Neldner and Clarkson (1991). It has been recorded at 22 additional sites elsewhere on Cape York Peninsula. Vegetation communities in which *D. peninsularis* was frequently recorded included a variety of *Eucalyptus tetrodonta* and *E. nesophila* woodlands, *E. tetrodonta* and *E. hylandii* woodlands and *E. cullenii* woodlands. It was also recorded once in a *E. leptophleba* open-woodland, and once in a *Asteromyrtus brassii* and *Neofabricia myrtifolia* low open-forest.

Decaschistia peninsularis occurred on a diversity of landforms ranging from sandstone ranges, granite hills, bauxite plateaus, erosional surfaces and depositional plains. It was found growing on a variety of soil types including red earths, yellow earths, earthy sands, lithosols and a single occurrence on a brown clay.

From this data, it is obvious that *D. peninsularis* has a wide range of vegetation

communities, landforms and soil types within which it successfully grows.

Conservation status: Due to the limited number of specimens held in herbaria and few recorded field observations, *Decaschistia peninsularis* (then known as *Decaschistia* sp. 'Rokeby') was afforded a conservation status rating of 3K (poorly known taxon but suspected of being rare) by Thomas and McDonald (1989). It was not listed in Briggs and Leigh (1988). The additional data collected since 1989 shows that *D. peninsularis* should be removed from any list of rare and threatened plants, because of the broad range of habitats in which it occurs and the low level of disturbance currently occurring in these habitats. It regenerates well from the roots when the aerial parts of the plant are damaged by fire or mechanical disturbances. It is protected in Rokeby National Park, the Heathlands Department and Official Purposes Reserve (south of Bamaga) and probably the Jardine River National Park (south of Bamaga).

Decaschistia peninsularis flowers mainly in the wet season (January to May) and at this time is quite conspicuous. However, access to

northern Cape York Peninsula is difficult at this time. This may explain why the species was previously poorly collected and only recently described.

Acknowledgements

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Appendix 1. Site localities

Neofabricia mjoebergii (Cheel) Joy Thomps.

Detailed Sites: 548 (14°40'S, 143°49'E); 551 (14°45'S, 143°33'E); 16 (14°58'S, 143°35'E); 754 (15°05'S, 144°26'E); 755 (15°05'S, 144°26'E); 8 (15°13'S, 143°45'E); 773 (15°18'S, 144°13'E); 729 (15°18'S, 144°49'E); 561 (15°25'S, 142°59'E); 567 (15°26'S, 142°39'E).

Observational Sites: 14°24'S, 144°19'E; 14°26'S, 144°17'E; 14°36'S, 144°18'E; 14°36'S, 144°41'E; 14°37'S, 144°16'E; 15°01'S, 144°21'E; 15°09'S, 143°16'E; 15°17'S, 142°49'E; 15°23'S, 142°35'E; 15°23'S, 142°36'E; 15°25'S, 142°47'E; 15°26'S, 142°48'E; 15°26'S, 142°48'E; 15°26'S, 142°49'E; 15°34'S, 142°43'E; 15°37'S, 142°43'E; 15°38'S, 142°42'E; 15°41'S, 142°40'E; 15°42'S, 142°39'E; 15°45'S, 142°32'E.

Neofabricia sericisepala J. Clarkson & Joy Thomps.

Detailed sites: 614 (14°23'S, 144°33'E); 18 (14°52'S, 143°14'E); 754 (15°05'S, 144°26'E); 556 (15°16'S, 142°47'E); 561 (15°25'S, 142°59'E); 566 (15°27'S, 142°39'E); 505 (15°46'S, 144°16'E); 509 (15°55'S, 144°17'E).

Observational sites: 15°46'S, 144°16'E; 15°47'S, 144°16'E.

Decaschistia peninsularis Craven & Fryx.

Detailed sites: 391 (11°50'S, 142°30'E); 316 (12°02'S, 142°32'E); 203 (12°18'S, 142°52'E); 201 (12°21'S, 143°02'E); 248 (12°27'S, 142°06'E); 250 (12°27'S, 142°09'E); 204 (12°27'S, 142°54'E); 207 (12°27'S, 142°55'E); 52 (12°29'S, 142°40'E); 205 (12°29'S, 143°01'E); 131 (12°28'S, 142°38'E); 134 (12°31'S, 142°39'E); 302 (12°31'S, 143°06'E); 133 (12°32'S, 142°10'E); 138 (12°32'S, 142°39'E); 137 (12°35'S, 142°40'E); 238 (12°40'S, 142°18'E); 124 (12°40'S, 142°41'E); 240 (12°41'S, 142°06'E); 241 (12°41'S, 142°06'E); 43 (12°41'S, 142°42'E); 74 (12°47'S, 142°43'E); 257 (12°52'S, 143°00'E); 255 (12°59'S, 143°00'E); 254 (13°03'S, 143°00'E); 253 (13°04'S, 143°00'E); 230 (13°07'S, 142°50'E); 225 (13°28'S, 142°58'E); 224 (13°39'S, 143°05'E).

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